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CONSERVATION OF BIOLOGICAL DIVERSITY

Progress Report of the Secretary-General of the Conference

I. INTRODUCTION

1. The Preparatory Committee, at its first substantive session, in decision 1/16 requested the Secretary-General to examine and report to the Second Session on the Status of the negotiations of an international legal instrument on biological diversity concerning the protection of biological diversity and the rational use of biological resources within a broad socio-economic context, to analyse the results achieved and to make recommendations thereon. 1/

2. Biological diversity is fundamental to human life. It is a basic feature of the way in which living organisms are structured. As such, it provides support for ecosystems, for the regulation of water and the atmosphere and the basis for agricultural production. When genetic variations are lost, therefore, not only are specific and potential properties and adaptations also lost, but with them species are diminished, ecosystems are impaired and the ability to sustain human life is damaged.

3. Biological and genetic resources have an inestimable value which is nevertheless difficult to quantify in economic terms. Like the atmosphere and the waters of the Earth, biological diversity has been largely taken for granted as a free good. Individual species have acquired commercial value in

varying degrees as sources of pharmaceutical and other commercially-marketed products and genetic material for breeding of food crops. But only recently has there been a growing awareness of the indispensable value of the ecological systems, of which tropical forests are a notable example, which provide the sources and storehouses of these resources. It is essential that these values be much more fully recognized so that the costs of conserving and developing them sustainably is seen as a better alternative in economic as well as environmental terms to allowing them to be destroyed through unsustainable development practices.

4. Biodiversity is only one feature of an entire collection of individual and quite different elements which are continuously evolving and adapting. Biodiversity itself cannot be preserved as a fixed property or entity. Ensuring the continuing productivity of the biosphere for current and future generations presents major problems. It requires as a first step specifying the ways in which biodiversity is influenced by human activity, and the objectives for its use and conservation.

5. In this report the Secretary-General of the Conference has:

(i) Provided an account of the progress of negotiations on an international legal instrument for conserving biodiversity; and

(ii) Suggested a number of potential areas for action, which the Preparatory Committee is invited to consider.

6. In preparing this report, the Secretary-General of the Conference has worked closely with the relevant agencies of the United Nations system, from whom useful suggestions and contributions have been received and duly reflected. In particular, assistance and advice were received from members of the Ecosystem Conservation Group; the United Nations Environment Programme; the Food and Agriculture Organization; the United Nations Educational, Scientific and Cultural Organization; the United Nations Development Programme; the International Union for Conservation of Nature and Natural Resources; the World Resources Institute; the World Wildlife Fund; as well as from the International Union of Biological Science. The members of the informal ad hoc Working Party on Biodiversity also provided very useful help in the preparation of the report and the work of the secretariat.

II. STATUS OF NEGOTIATIONS ON AN INTERNATIONAL LEGAL INSTRUMENT

7. Following three sessions of the ad hoc Working Group of Experts on Biological Diversity, the United Nations Environment Programme (UNEP) convened the first meeting of the ad hoc Working Group of Legal and Technical Experts in Nairobi on 19-23 November 1990. This was attended by experts from 70 countries, including 52 developing countries, with observers from 8 United Nations bodies and specialized agencies and 5 international organizations. 2/

8. The Chairman of the ad hoc Working Group of Experts on Biological Diversity summarized the results of the first three meetings as follows:

- the urgent need for a new international legal instrument had been identified;

- there was agreement that biological diversity and its related technologies were complementary and that this should be reflected in the instrument;

- concern existed that commitments to funding would not be fulfilled, and would render the instrument meaningless.

9. The meeting of the ad hoc Working Group of Legal and Technical Experts discussed a number of issues for possible inclusion in a global framework legal instrument.

Fundamental principles

10. A number of guiding principles were identified, including the following:

- the concepts of the common concern of humankind 3/ and of the sharing of benefits should be explored further in relation to biological diversity;

- mutual agreement between countries should form the basis of access to natural resources;

- the interdependence of biological diversity and biotechnology should be recognized; and

- the legal instrument should be compatible with the International Undertaking on Plant and Genetic Resources.

11. It was also suggested that the preventive and precautionary approach, as well as the Polluter Pays Principle, should be taken into account; that a new multilateral fund should be established; that developing countries should benefit from research and development based on biomaterial taken from their countries; that the conservation of biological diversity should be remunerated; that indigenous peoples should be rewarded in some way for innovation; and that a clear distinction should be made between the obligations and responsibilities of developed and developing counties.

General obligations

12. A number of general obligations were identified directed mainly at furthering co-operation, restricting harmful activities, and addressing the special needs of developing countries. These included:

- taking appropriate steps to conserve and restore biological diversity at the national and international levels;

- curbing action potentially harmful to biological diversity in areas and States beyond national jurisdiction, using environmental impact assessment whenever appropriate;

- developing policies, strategies and programmes for the sustainable utilization of biological resources;

- aiming to achieve the objectives of the convention through co-operation.

Measures for Conservation and Sustainable Utilization of Biological Diversity

13. Among the measures discussed were:

- the need for a better reflection of the balance between the benefits and burdens associated with the conservation of biological diversity;

- the need for implementation in accordance with national priorities and plans, possibly by means of national biological diversity strategies;

- the relative merits of and inherent links between in situ conservation and ex situ conservation (which should be undertaken in the countries of origin of biological diversity);

- the need to create special economic development areas around protected areas with measures for in situ conservation implemented by national bodies; and

- the need for improved research facilities in developing countries; better education and public awareness measures; and the establishment of more natural history museums for ex situ conservation.

Availability of access to biological diversity technology and information thereon/transfer of technology for the conservation and utilization of biological diversity/technical assistance to developing countries

14. Views expressed suggested that:

- the approach to the transfer of technology should be based either on a preferential and non-commercial basis or on the notion of "fair and equal" exchange of technology;

- since States do not own the major part of technology and cannot intervene to direct the private sector, the elaboration of provisions for the transfer of technology to developing countries would be cumbersome. In any case, property rights were already dealt with by organizations such as GATT and WIPO;

- but developed countries should in any case develop a mechanism for transferring technology from the private sector.

Protocols and international co-operation

15. Discussion of Protocols was thought premature by some. The Ecosystem Conservation Group are developing a set of general principles and guidelines for country case studies (nine so far proposed).

Organization of work

16. The bureau for the negotiating process would be elected by the negotiating body at its next meeting in February 1991. It was aimed to have the convention ready by 1992.

Next steps

17. The UNEP secretariat is to prepare the draft convention based upon the ad hoc Working Group Meetings. The secretariat would include all the options presented by different delegations. The final draft convention is to be distributed in United Nations languages to Governments at least one month before the next meeting of the ad hoc Working Group.

III. POTENTIAL AREAS FOR ACTION

18. Conserving biodiversity will call for the development and implementation of a comprehensive response involving a wide range of in situ and ex situ activities; in protected and outside protected areas, at local, national, and international levels. Any package of measures to save, study and utilize the world's biodiversity in a sustainable manner should draw upon, reinforce and supplement ongoing and planned activities of United Nations agencies, in particular the FAO, UNESCO, UNEP, UNIDO, UNDP and non-governmental organizations such as IUCN, WRI, WWF and IUBS. The Preparatory Committee may wish to consider the following potential areas of action:

(i) Integrating biodiversity and development policies, planning and projects

19. Maintenance, knowledge and understanding of species, genes and ecosystems and their sustainable management for ethical, cultural and material purposes depends, in practical terms, upon the extent to which goals and objectives are integrated with development policies. Integration of biodiversity and development can take place through development instruments, including land use planning, marine and coastal zone planning, forest management plans and formulating and implementing national biodiversity strategies. Project planning by local authorities, national ministries and agencies, and development aid institutions can incorporate steps to determine goals and means for maintaining key sites, species and genes, investing in research, inventory and assessment, and in options in forestry, agriculture, fisheries and wildlife management.

Activities to foster integration might include:

- preparation of quantified case studies to demonstrate the interdependence of various sectors (e.g. industry, agriculture, fisheries, forestry) for enhancing the productivity of ecosystems and mitigating damage to biodiversity;

- assessment of the relationship between per capita income and the utilization of "wild" natural resources to determine the dependence of the rural poor on biodiversity; and

- development of methodologies for determining and establishing national development objectives to conserve biodiversity.

(ii) Identifying policies to conserve biodiversity

20. Policies, including international policies, that promote the conservation and enhancement of biodiversity need to be identified and methodologies to assess the impacts of such policies and ways of rendering them more sympathetic to the conservation of biodiversity developed. The factors to be considered include the following:

- biodiversity conservation and development require a favourable policy and legislative context, whereas existing policies and laws have normally been established for other purposes under different economic and historic conditions;

- subsidies often promote farming on poor or marginal soils, timber harvesting methods which disregard future tree growth, road building which opens wilderness tracts to spontaneous colonization, and overfishing. Incentives can be designed to foster longer term considerations in forestry, agriculture and fishing, and to ensure future yields, allowing in turn for ecologically sensitive sites to be protected, watersheds to be maintained, and seed supplies for local interest to be retained;

- biodiversity has links with foreign policy-making. For example, under the World Charter for Nature, nations are called upon to consider their responsibilities to the global community and to future generations regarding species, genes and ecosystems by ensuring their continuity and productivity; and

- governments, particularly in developing countries, should be assisted to elaborate legislation for the protection of their biodiversity. Incentives and concessions to foster implementation and compliance will be suggested.

(iii) Promoting regional approaches to conservation

21. The application of biodiversity conservation by means of micro-scale projects within national parks and through endangered species rescue while central to biodiversity conservation entails fundamental problems of scale. Plants, animals and landscapes/seascapes the world over have been influenced and shaped by humans through hunting and gathering, fire, agriculture, gardening, forestry, fishing, and more recently through pollution, mining, and urban development.

22. The array of species and genes to be conserved is currently found not only in wildlands but in forest stands harvested for timber and other products, grazing fields, croplands, and near villages and urban centres. Ecosystem functions, including the cycle of nutrients, the disposal of wastes, the flow of streams and groundwater occur over large areas. Management is therefore needed at the regional level on land and in the sea. Ideal units include river basins or watersheds, mountain areas and marine bodies and their coastal zones.

23. The concept of ecoregions aimed at establishing mechanisms to deal with ecologically homogenous areas that transcend national boundaries needs to be developed, through:

- more case studies, lessons learned, guidelines, and demonstration programmes. Mainstream conservation typically involves relatively large areas of land, within which a protected area is only one element. There are as yet few good examples of "ecoregion management".

- the application of administrative and managerial structures to the concept of ecoregions needs to be examined, and the co-ordination of highly diverse activities over a fairly large area and the responsibilities of different levels of government addressed. The possible contribution of local communities need to be identified. For example, resource management responsibilities might be concentrated at the most local possible level, with higher levels of government responsible for setting and enforcing standards, facilitating trade, and other policy decisions.

(iv) Consolidating protected area network

24. The maintenance of species, genes and ecosystems requires the application of many different conservation measures, selected according to particular circumstances. Protected areas are fundamental to the maintenance and protection of endemic plants, sources of plants or animal material of value to agriculture and forestry germplasm, as well as for the conservation of marine biodiversity. However, protected areas should be supplemented by a variety of other policies to protect wider areas under human use. Factors to consider include:

- the need to consolidate regional and global networks of protected terrestrial coastal and marine areas, the development of a global protection and management strategy, and the elaboration of mechanisms for strengthening existing networks and including more protected areas, as well as ensuring the participation of local population in their management;

- the identification of the highest priorities for improving the management of existing protected areas. While all protected areas need to be managed well, some are so important internationally that they merit support from the international community. Similarly, the highest priorities for establishing new protected areas need to be identified to help facilitate the establishment of such areas and the provision of the necessary investment;

- the need to improve the management capacity of protected area agencies. A wide range of specific activities for the improvement of management capacity is expected to be carried out in preparation for the Fourth World Congress on National Parks and Protected Areas. Protected area management practices, based on practical field experience, have to be analysed and appropriate policies recommended.

(v) Strengthening ex-situ conservation of species and genetic resources

25. Measures to conserve plant and animal biodiversity include ex situ methods, such as zoos, botanic gardens, captive breeding stations, seed banks, germplasm storage facilities, as well as biotechnology applications such as tissue culture, protoplast fusion, embryo transfer and cryopreservation.

Of the approximately 1,300 botanic gardens worldwide the majority are located in northern temperate latitudes, leaving the most endangered ecosystems in tropical moist forests with the least access to these vital services.

Seed banks also play an important role in ex situ conservation, although some plant species propagate best by vegetative means.

Captive propagation and wildlife reserves are major approaches used for animals, which may help preserve some genetic diversity found in wild relatives of domesticated species, helping to improve pest or disease resistance as well as other desirable characteristics.

The application of biotechnology could also contribute to the ex situ conservation of plant and animals.

There is a need to strengthen and increase the linkages between in situ and ex situ conservation, as well as the use of the whole range of techniques for ex situ conservation. Some of the activities that should be undertaken include:

- a co-ordinated undertaking worldwide to increase collections of biological samples in museum and herbaria;

- better use of new cataloguing methods and more efficient use of personnel in these institutions;

- promoting of curating collections;

- promoting more botanical gardens in tropical regions;

- promoting seed collections for wider variety of plants;

- review of biotechnology applications that could be used to increase plant and animal conservation.

(vi) Enhancing knowledge and information

26. There is a need to develop our understanding on how life in its many manifestations functions. As a first step the elements with which we work need to be described and catalogued. We need to know how much diversity exists and how important it is to retain it. In practical terms the policy and decision-making needs of governments, industry, research establishments, academia, etc., require information on the basic composition, structure and function of ecosystems and on the plants and animals they contain.

27. The extent of the available knowledge varies enormously from the temperate and arctic areas, where it is reasonably acceptable, to tropical areas and marine aquatic environments, where it needs to be improved. Possible steps to remedy this situation might include:

- the development of new and more imaginative methods of cataloguing, which makes imaginative use of non-scientific personnel ("parataxonomists") and of modern computer methods, though for a general inventory of the world's biodiversity the scientific community would still have to be involved;

- the development of sampling methods: the number of species (especially of invertebrates and marine organisms) is so high that carefully describing each may not be a realistic goal. By establishing a global sampling grid to estimate the world's diversity, through an inventory (i.e. how many species exist) and a survey (i.e. how is the diversity distributed) and with proper organization and modest funding, a reasonably precise estimate of the diversity of species and ecosystems of the world could be obtained in 5 to 10 years;

- the compilation of an inventory of traditional knowledge systems highlighting those aspects which can contribute to conservation and development. Special attention would need to be given to the identification of traditional knowledge systems that are endangered;

- the provision of financial and technical resources to enable indigenous people to conduct their own research. The aim should be to create an indigenous scientific community that includes both traditional expertise and acquired scientific skills and procedures.

- support for the wider dissemination of knowledge on biodiversity. The available information also needs to be made more accessible to those who require it, in a form they can apply to real management problems. Modern information technology could provide an important mechanism to make information more widely and readily available.

(vii) Developing the capacity to monitor and audit

28. The selection of goals and objectives for biodiversity conservation and development and subsequent decisive action require clear indicators to measure response to management and investment. Numerous schemes exist for measuring components of biodiversity, but they do not adequately serve the needs of policy-makers or the objectives of biodiversity conservation. Policy-relevant measurements of biodiversity and the objectives for conserving biodiversity are interlinked. Among the steps which might be considered are:

- the monitoring of biodiversity should be closely linked to the monitoring of crop productivity and climate to detect inefficient land-use practices or climatic or other change;

- much more work is needed on methodologies for monitoring land use changes by satellite, especially in correlating satellite observations to changes in biota. Biosphere reserves, which combine protected areas with areas under management, are particularly suitable as earth-based observatories in combination with satellite observations;

- a system to verify and evaluate the monitoring and auditing of the preservation of biodiversity is needed. Sophisticated monitoring systems will take some years to be put in place: indicators are required to enable approximate monitoring to take place;

- the status and trends of forest management need to be monitored including accurate and objective assessment of the rate of loss of forests;

- other ecosystems and specific areas also need to be monitored to assess their status and trends, using certain key and critical species as diagnostic indicators of the adequacy of the protected area.

29. For these observations to make sense they have to be based on scientific analysis. Change is a characteristic of biological systems, so it is necessary to be able to distinguish random or cyclical change from systematic change caused by human activities, as well as from those activities which increase land productivity, and those that decrease it. These links therefore will also be developed in this component.

(viii) Promoting education and training

30. Developing the necessary human resources is critical for the effective planning and implementation of biodiversity policies, strategies and programmes. There is a need for education at the level of the general public, for education at the tertiary university level, for training of specialists, and for training of managers. Particular consideration could be given to:

- the development of local curricula on biodiversity. Most countries have focused on national educational curricula, but local knowledge on biodiversity and its preservation is being lost. Action is therefore required to show how local knowledge can be incorporated into the curricula of schools in rural regions, though the importance of the regional and international approaches to education and training should also be borne carefully in mind; and

- an assessment of the manpower requirements for the conservation of biodiversity. Modern comprehensive approaches to conserving biodiversity may require more sophisticated managers. Their number and the information they will need to know also needs to be determined, as does the local knowledge needed to support development appropriate to the specific setting.

(ix) Improving the international trading system to promote biodiversity

31. The discussions and negotiations now taking place over intellectual property rights and genetic resources reflect a positive new thrust in international conservation. They also reflect the growing awareness of the potential values of genetic resources and an active interest in the steps needed both to conserve those resources and to seek to derive benefit from their conservation. After a decade of discussion, the principle of farmers' rights is now widely accepted as a useful counterpoint to the concept of breeders' rights. The challenge now is to develop new instruments, intellectual property régimes, funding mechanisms, and technologies that will provide effective incentives for:

- encouraging the conservation of biodiversity;

- encouraging local and national innovation related to biological resources; and

- justly compensating the custodians of the world's genetic resources.

32. Such resources should be viewed as being of common interest to humankind, but at the same time it needs to be recognized that nations have a right to consider them as sovereign resources. Steps to be taken might include:

- the development of mechanisms to enable governments to exercise flexibility over the choice of schemes for intellectual property protection at the same time as meeting their needs for economic development, technology transfer, and public health and nutrition. The issue of whether or not to include biological materials in trade-related discussions of intellectual property rights needs to be resolved: the impact of intellectual property protection on innovation related to biological resources has many unique features;

- farmers' rights need to be maintained and support provided to enable them to maintain the diversity of their crops and their cropping systems. Greater effort should also be made to enabling them to do their own research and to enable national research capacities to be developed to stimulate greater production and international trade;

- breeders need to pay a fair price for their "rights", which are often built on wild resources or on genetic diversity maintained by farmers. Methods need to be developed to avoid monopoly and ensure that the food production capacity of the world's farmers is expanded, not restricted. Access to genetic resources also needs to be enhanced;

- the rights of indigenous peoples need to be recognized. Indigenous people over the centuries have developed considerable wisdom, particularly on medicinal plants, agriculture, forestry, and wildlife management, but this is not currently regarded as intellectual property.

(x) Economic benefits and financial mechanisms

33. As methods for the accounting and economic analysis of the costs and benefits of biodiversity are not fully developed, it is difficult to calculate investment opportunities and priorities. Biodiversity values are poorly reflected in commodity prices, and the many non-financial values associated with ethical, moral, and cultural considerations and overall maintenance of the biosphere, though highly appreciated by societies, remain largely outside the analyses. Furthermore, while some nations bear the costs of conservation, others enjoy the benefits: indeed biodiversity conservation costs are normally incurred by the host country. It would be more useful to consider the equation in terms of investment opportunities, so that countries can invest for the maintenance of ethical, traditional, and cultural values and the promotion of new options for the local and national economy. Steps to be taken might include:

- the initiation of a major research programme to quantify the contribution of biodiversity to local and national economies. This programme should seek to undertake a comprehensive economic assessment, including the direct consumption of wild natural resources, those that are marketed, and the value of services provided by natural ecosystems. It should result in a methodology that can be easily applied at the local level, so that the economic benefits of

conserving biodiversity are recognized when costs are considered. The social and cultural benefits of conserving biodiversity would also be elaborated in the study;

- the study of financial mechanisms (for example, bilateral and multilateral funding, global environmental facility, debt-for-nature swaps, private sector investment and sponsoring) and economic incentives for the conservation of biodiversity;

- the wide distribution of the results of work already undertaken on economic incentives for the conservation of biodiversity. These should be tested in certain demonstration countries to show how they work.

(xi) Strengthening institutions for conserving biodiversity

34. In general the institutional structures for resource management do not foster biodiversity conservation and development. Most notable are those cases where species, genes and ecosystems are divided among public agencies, making comprehensive and co-ordinated management and investment particularly difficult. Institutional processes associated with land tenure and access to resources often promote migratory settlement and deforestation by denying a long-term commitment by the landless to a forest strategy.

35. One major constraint is the fundamental difference between the way natural systems function and the way government organizations are structured to manage those systems. Natural systems are highly interrelated structures with many complementary functions, while government agencies responsible for managing these systems are traditionally characterized by conflicting jurisdiction and responsibilities. Steps to be taken might include:

- the strengthening of direct resource management agencies. Institutional mechanisms need to be developed to ensure a more comprehensive approach to solving resource management conflicts by including more factors external to the decision-making processes. Long-term research and monitoring efforts should become part of the management system. The conditions under which co-ordinating efforts are likely to be effective needs to be determined. Policy obstacles to the preservation of biological resources need to be overcome and administrative procedures streamlined. Governments and the private sector need to be encouraged to work towards the same objectives. Local participation by non-governmental organizations might play an important role here. Four levels of activity might be considered:

  (a) actions at the international level, particularly to co-ordinate and harmonize the programmes of the various agencies, should be strengthened and improved, building on existing mechanisms and working as equal partners. Where appropriate, the idea that agencies be designated to take a lead role in an activity, depending on competence and mandate, should not be seen as contradictory. Currently, ongoing international programmes and mechanisms which promote biodiversity conservation are poorly funded,

(b) actions to promote collaboration among countries need to be strengthened. Case examples of collaborative activities should be prepared as models and used to enhance co-operation;

(c) there is a need to assist countries in improving their own capacities and developing their own institutions; and

(d) finally, there is a need to develop mechanisms at the community level, which although a national concern, would probably also need inputs from bilateral and multilateral sources.

Notes

1/ Report of the Preparatory Committee for the United Nations Conference on Environment and Development, Official Records of the General Assembly, A/45/46, decision 1/16.

2/ Report of the First Session of the ad hoc Working Group of Legal and Technical Experts on Biological Diversity. UNEP/BIO.DIV/WG2/1/4, 28 November 1990.

3/ Principle 3 of the Stockholm Declaration and General Assembly resolutions 44/207 and 44/228.